



Priority, Market-Ready Technologies and Innovations List

The technologies and innovations (T&Is) described below are ones that the Federal Highway Administration (FHWA) believe warrant special attention.

This list is not intended to include all T&Is available. Numerous T&Is are being developed, but are not yet ready to be marketed in the field. In addition, many T&Is are considered good concepts, practices, and/or success stories that should continue to be shared. This initial list is intended to be a living list. A process will be developed for reviewing and updating these T&Is.

511 Traveler Information—An easy-to-remember three-digit telephone number available to State and local transportation agencies nationwide so that they can readily provide information and highway and transit conditions to travelers by telephone. Contact: Bob Rupert, 202-366-2194.

Asset Management Guide—The guide illustrates asset management principles and identifies techniques and methods for adopting the decisionmaking framework in transportation agencies. Contact: Stephen Gaj, 202-366-1559.

Augered Piles—The technology is characterized by the drilling of a hollow-stem auger into the ground, pumping grout or concrete into the hole, and installing reinforcement in the pile. This eliminates the need for a temporary casing. Contact: Silas Nichols, 410-962-2460.

Border Wizard—A PC-based software model that accurately simulates all cross-border movements of autos, buses, trucks, and pedestrians, using customs, immigration, and security procedures. Contact: Mike Onder, 202-366-2639.

Dispute Resolution Guidance for Environmental Streamlining—These procedures present strategies for interagency collaborative problem solving during the transportation development and environmental review process. Contact: Ruth Rentch, 202-366-2034.

Expanded Polystyrene (EPS) Geofoam—Lightweight material that can be used as fill behind walls and other support structures. Contact: Peter Osborn, 410-962-0702.

FHWA Traffic Noise Model (TNM), Version 2.1—By improving the ability to predict noise impacts in the vicinity of highways, this model improves the quality of project development decisions. Contact: Bob Armstrong, 202-366-2073.

Highway Economic Requirements System, State Version—A software model that is designed to evaluate the implications of alternative programs and policies on the conditions, performance, and user cost levels associated with highway systems. Contact: David Winter, 202-366-4631.

Improved Decisionmaking Using Geographic Information Systems—A software program that allows for manipulation, analysis, and display of geographically referenced data. Contact: Mark Sarmiento, 202-366-4828.

Interagency Funding Guidance for Environmental Streamlining—Guidance provides transportation and resource agencies with options for using Federal funds to support Federal resource agency coordination for streamlining environmental reviews. Contact: Ruth Rentch, 202-366-2034.

Intelligent Transportation Systems (ITS) SpecWizard—A software tool that can help transportation agencies write specifications for the National Transportation Communication for ITS Protocol (NTCIP) standards-based ITS equipment. Contact: Jason Hedley, 202-366-4073.

Load and Resistance Factor Design and Rating of Structures—An AASHTO Load and Resistance Factor Design (LRFD) and Rating (LRFR) bridge specification provides for more uniform levels of safety, which should lead to superior serviceability and long-term maintainability. Contact: Firas Ibrahim, 202-366-4598.

Pavement Smoothness Methodologies—The new pavement smoothness specification covers smoothness test methods, smoothness equipment specifications, and equipment-certification programs. Contact: Mark Swanlund, 202-366-1323.

QuickZone—A user-friendly computer software tool for estimating and analyzing length of queues and delays in work zones. Contact: Scott Battles, 202-366-4372.

Red Light Cameras—The traditional enforcement of violations for running red lights is automated by using camera systems at light-controlled intersections that detect an offending motorist, capture an image of the license plate, and issue a citation by mail. Contact: Hari Kalla, 202-366-5915.

Roundabouts—A circular intersection that requires entering vehicles to yield to existing traffic in the circulatory roadway. Contact: Hari Kalla, 202-366-5915.

Rumble Strips—Shoulder rumble strips are continuous grooved indentations in roadway shoulders that provide both an audible warning and a physical vibration to alert drivers that they are leaving the roadway. Contact: Dick Powers, 202-366-1320.

Safe Speeds in Work Zones—Two technologies that can improve safety in work zones are portable speed limit signs that automatically display the safe speed based on traffic conditions and the nature of the roadwork, and feedback displays that show the speed of approaching vehicles. Contact: Davey Warren, 202-366-4668.

Transportation, Economics, and Land Use System (TELUS)—This information-management and decision-support system helps State DOTs and metropolitan planning organizations prepare their annual transportation improvement programs and statewide transportation improvement programs. Contact: Fred Ducca, 202-366-5843.

AASHTO Technology Implementation Group Approved Technologies

Accelerated Construction—This undertaking promotes creative techniques to reduce construction time and enhance quality and safety. Contact: Dan Sanayi, FHWA, dan.sanayi@fhwa.dot.gov.

Air Void Analyzer—The air void analyzer can be used to provide real-time evaluation for measuring air content, specific surface, and the spacing factor of fresh portland cement concrete. Contact: John Wiakowski, Kansas DOT, johnw@ksdot.org.

Fiber-Reinforced Polymer—This material can be used to repair cracks in overhead sign supports by wrapping the support with the fiber-reinforced material. Contact: Paul Wells, New York State DOT, pwells@gw.dot.state.ny.us.

Global Positioning System (GPS) Surveying

The GPS uses satellites that transmit signals continuously; it has many highway applications, including surveying pavement conditions and inventorying highway assets. Contact: Charlie Brown, North Carolina DOT, charliebrown@dot.state.nc.us.

Ground-Penetrating Radar—Vehicle-mounted, ground-penetrating radar can be used to collect information about underlying highway pavement layers without incurring the time and labor costs and traffic delays associated with traditional methods of drilling for core samples. Contact: Mike Murphy, Texas DOT, mmurphy@dot.state.tx.us.

Highway Rail Warning System—A low-cost active warning system used at low-volume, highway-railroad at-grade intersections, most often mounted on standard crossing poles, and the technology is solar battery-powered with wireless communications between the device and the locomotive. Contact: Dave Huft, South Dakota DOT, dave.huft@state.sd.us.

ITS Technologies in Work Zones—The use of ITS technologies in work zones, such as ramp-metering systems, intrusion alarms, and queue-detection information (sensors/cameras), is aimed at increasing safety for workers and road users and ensuring a more efficient traffic flow. Contact: Doug Rose, Maryland State Highway Administration, drose@sha.state.md.us.

Prefabricated Bridge Elements and Systems

These systems minimize traffic impacts of bridge construction projects, improve construction work-zone safety, and make construction less disruptive for the environment by minimizing the need for lane closures, detours, and use of narrow lanes. Contact: Mary Lou Ralls, Texas DOT, mrralls@dot.state.tx.us.

Thermal Imaging Safety Screening System—The system allows an operator at a weigh station to view the relative temperatures of brake drums through the wheel rims of commercial vehicles, using infrared images to detect whether brakes are functioning properly. Contact: Gary Hoffman, Pennsylvania DOT, ghoffma@dot.state.pa.us.